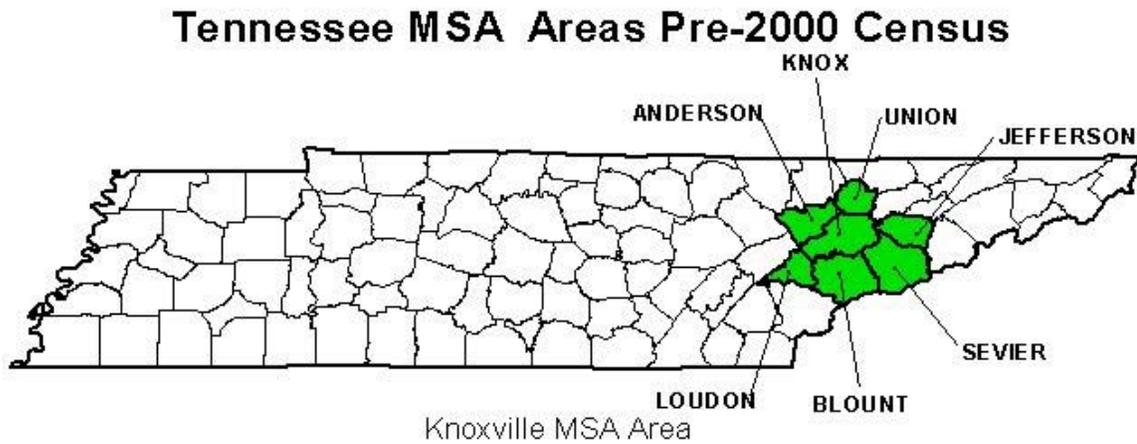


Knoxville MSA and Jefferson County

Local Air Quality Improvement Plan



The Knoxville Metropolitan Statistical Area encompasses six counties. It includes Anderson, Blount, Knox, Loudon, Sevier, and Union counties in East Tennessee. For purposes of comparison, Jefferson County is included in this discussion. In 2000, this MSA was listed as the 62nd largest MSA within the United States.

Anderson County, Tennessee

Geography/Topography

Anderson County has a land area of 337.51 square miles. The northwest portion of the county is on the eastern edge of the Cumberland Plateau, while the remainder lies in the valley and ridge portion East Tennessee. It is located north of I-40 and west of I-75 northwest of Knoxville.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Anderson County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Anderson County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Anderson County is performed by the Tennessee Department of Transportation.

Air Monitoring

For the 2001-2003 monitoring period, the ozone monitor 47-001-0101-1 located in Freels Bend Study Area Melton Lake shows an 8-hour design value of .087 parts per million (ppm) which would be classified as nonattainment (see Table 1 A).

Population

Based on projections to 2002 from the 2000 census data, there are 71,627 persons living in Anderson County (see Table 1 C). This indicates a population density of 212.2 persons per square mile. The population of Anderson County is approximately 41% rural with the remaining 59% living in incorporated areas. The largest cities in Anderson County are Oak Ridge and Clinton (see Table 1 C).

Anderson County's population from 1990 through 2000 increased by approximately 4.3% (68,398 to 71,330). The population is expected to increase by 6.5% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA and Jefferson County, Anderson County represents approximately 10% of the total population (see Table 1 C).

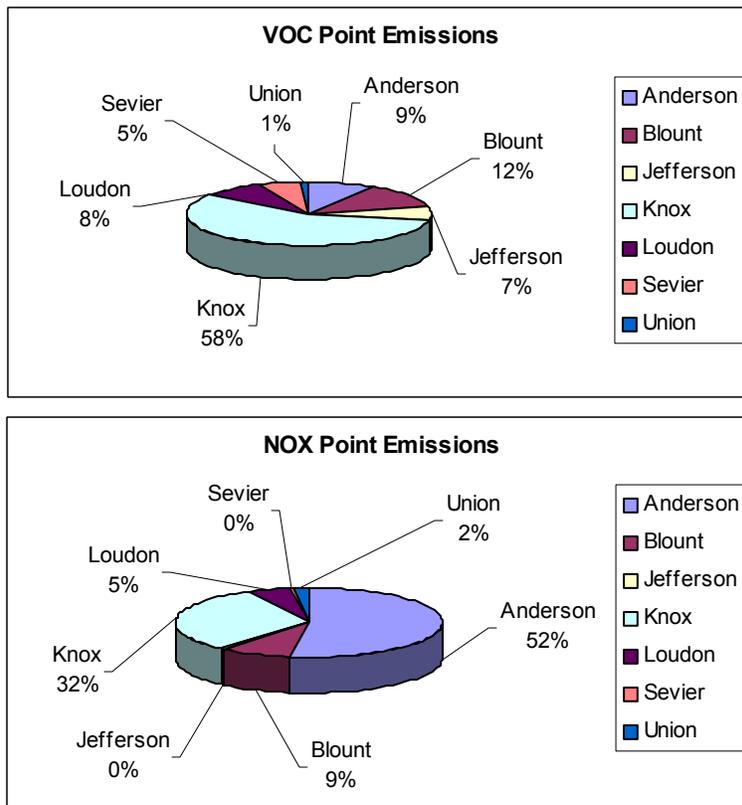
Air Emissions

All air emission estimates were derived from EPA's 1999 National Emission Inventory (NEI) database.

Point source NOX emissions from Anderson County were estimated at 42.3 ton/day in 1999 which represents approximately 52% of the 81.1 ton/day of overall NOX point source emissions from the Knoxville MSA (see Table 1 D).

Point source VOC emissions from Anderson County were estimated at 7.07 ton/day in 1999 which represents approximately 9% of the 80.25 ton/day of overall VOC point source emissions from the Knoxville MSA (see Table 1 D).

1999 NEI Point Source Emissions (ton/day)

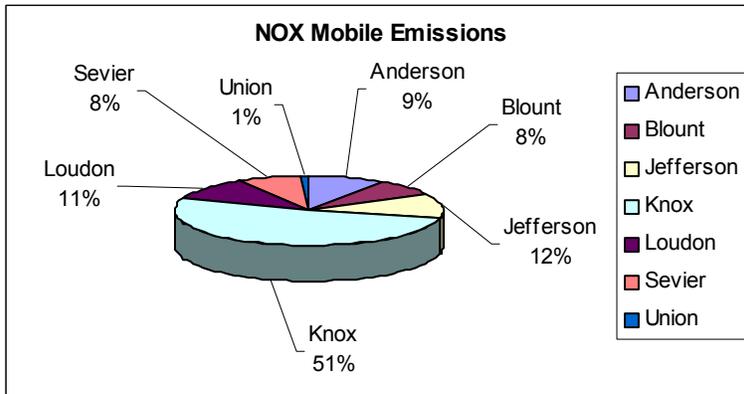
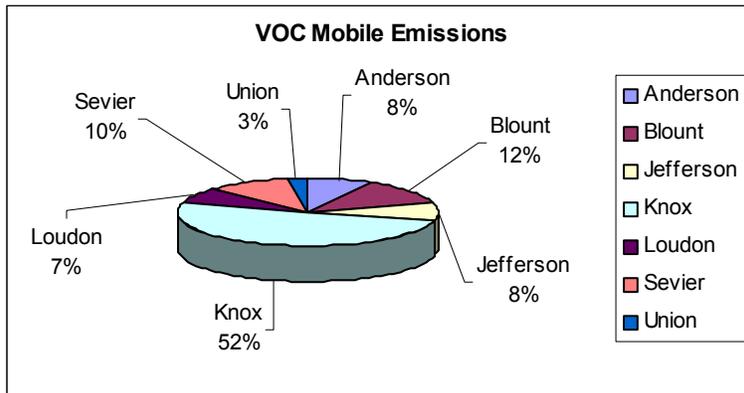


For NOX and VOC control, point sources located within Anderson County are subject to Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control Technology (MACT) requirements for Hazardous Air Pollutants (HAP), and New Source Performance Standards (NSPS).

Mobile source NOX emissions from Anderson County were estimated at 12.7 ton/day in 1999 which represents approximately 9% of the 136.8 ton/day of overall NOX mobile source emissions from the Knoxville MSA (see Table 1 D).

Mobile source VOC emissions from Anderson County were estimated at 6.26 ton/day in 1999 which represents approximately 8% of the 77.52 ton/day of overall VOC mobile source emissions from the Knoxville MSA (see Table 1 D).

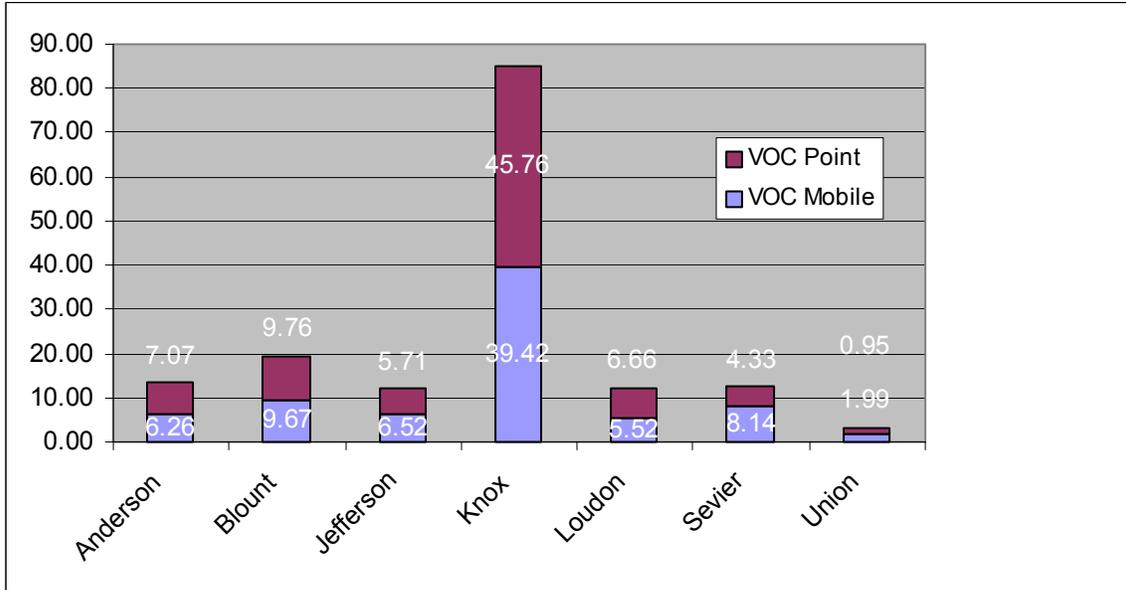
1999 NEI Mobile Source Emissions (ton/day)



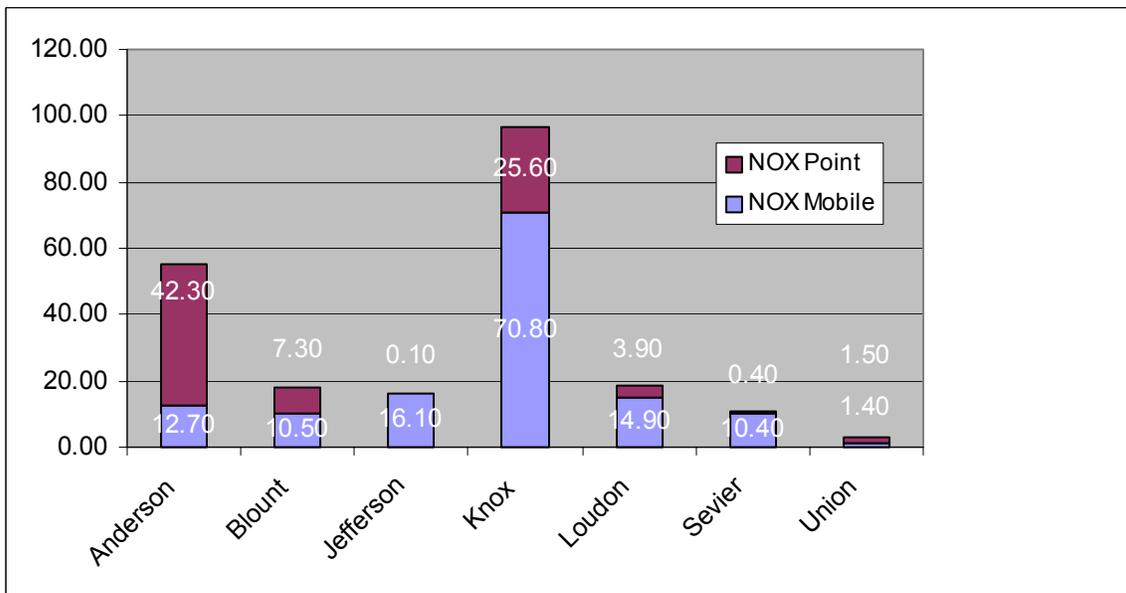
Commuting traffic from surrounding counties into Anderson County is significant. Commuting traffic from Anderson County into surrounding counties is high.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

1999 NEI VOC Contribution (ton/day)



1999 NEI NOX Contribution (ton/day)



Summary

Local air pollution emission reductions for Anderson County are listed in the Quantification of Control Measures Table. The local measures listed are to be implemented by the local government of Anderson County. All local measures are to be implemented by ozone season of 2007, at the latest. The most desirable implementation is the soonest time possible (ideally ozone season of 2005). Local jurisdictions understand that measures are to be implemented on a schedule that concurs with the schedule in the attainment demonstration modeling.

For a Weight of Evidence Analysis, review the summary Attainment Demonstration for the Knoxville Area and see the complete Weight of Evidence discussion presented in Chapter 8 of the Modeling Analysis Technical Support Documentation (TSD) for details.

Some voluntary measures were not included in the modeling demonstration. These measures will, it is expected, create even further reductions in the ozone level of the EAC. Effectiveness of these measures may not necessarily be quantifiable, however, given the concern for air quality in the region, any reduction is viewed as positive.

Please review the detailed attainment demonstration contained in the Modeling Analysis Technical Support Documentation, which includes specific information on the EAC's control measures and subsequent ozone design value. County level endorsement of their local control measures can be found in Attachment 1.

Emission Reductions for the AS-4 EAC Attainment Strategy
Quantification of Control Measures

Control Measure by Source Category	Anderson, TN		
	NOx TPD	VOC TPD	CO TPD
Area			
Open Burning Ban -resid. Garbage2A.	0.012	0.015	0.178
Open Burning Ban -yard waste2B.	0.003	0.019	0.100
Open Burning Ban - Land clearing2C.	0.178	0.692	4.700
Nonroad Mobile			
Construction Equipment (14.3 % New).	0.014	0.002	0.006
Onroad Mobile			
Truck stop electrification, 30% occupancy	0.012	0.001	0.011
Transit (increase bus ridership 5%)	0.000	0.000	0.000
Trip Reduction Programs	0.000	0.000	0.000
Traffic Flow Improvement	0.005	0.005	0.000
Ozone Action Day (Reduce VMT 1%)	0.027	0.035	0.393
Point			
50 Ton NOx/Year RACT Rule			
Becromal & Chestnut Landfill	0.350	0.000	0.000
Alcoa			
UT, St. Marys, Tamko, TSD, & CEMEX			
Kimberly Clarke & Trigen;Staley&Viskase			
Dan River			

Please see Table 7-4c on page 7-20 of the Modeling Analysis Technical Support Document for additional details and further discussion.

Blount County, Tennessee

Geography/Topography

Blount County has a land area of 559 square miles and is located in the ridge and valley region of the East Grand Division south of Knoxville. It is located in the south portion of the MSA, and the southeast portion of the county is in elevated terrain within the boundary of the Great Smoky Mountains NP.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Blount County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Blount County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Blount County is performed by the Tennessee Department of Transportation with a portion of the County handled by the Knoxville Regional Transportation Planning Organization.

Air Monitoring

Blount County, part of the Knoxville MSA, has two ozone monitors in the Great Smoky Mountains National Park. These sites are at higher elevations than most of the county's population centers. Tennessee, North Carolina, the National Park Service, and EPA are currently negotiating a policy regarding park monitors, especially the higher elevation sites. After this negotiation phase is completed, Tennessee will submit additional documentation and justification for handling the park monitoring sites through a different process.

For this reason the highest reading low elevation monitor not located in the Great Smoky Mountains National Park within the MSA was used. For the 2001-2003 monitoring period, the ozone monitor 470931020 – 1, located in Knox County was used. This monitor shows an 8-hour design value of 0.092 parts per million (ppm) which would be classified as nonattainment (see Table 1 A).

Population

Based on projections to 2002 from the 2000 census data, there are 109,849 persons living in Blount County (see Table 1 C). This indicates a population density of 197 persons per square mile. The population of Blount County is approximately 36.6% rural with the remaining 63.4% living in incorporated areas. The largest cities in Blount County are Maryville and Alcoa (see Table 1 C).

Blount County's population from 1990 through 2000 increased by approximately 23% (86,286 to 105,823). The population is expected to increase by 9% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Blount County represents approximately 16% of the total MSA population (see Table 1 C).

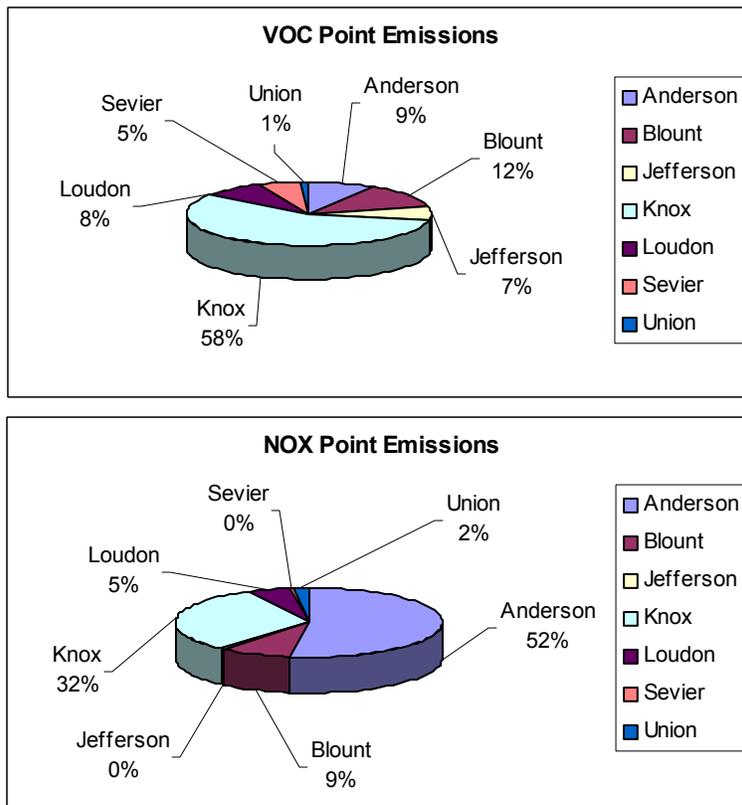
Air Emissions

All air emission estimates were derived from EPA's 1999 National Emission Inventory (NEI) database.

Point source NOX emissions from Blount County were estimated at 7.30 ton/day in 1999 which represents approximately 9% of the 81.10 ton/day of overall NOX point source emissions from the Knoxville MSA (see Table 1 D).

Point source VOC emissions from Blount County were estimated at 9.76 ton/day in 1999 which represents approximately 12% of the 80.25 ton/day of overall VOC point source emissions from the Knoxville MSA (see Table 1 D).

1999 NEI Point Source Emissions (ton/day)

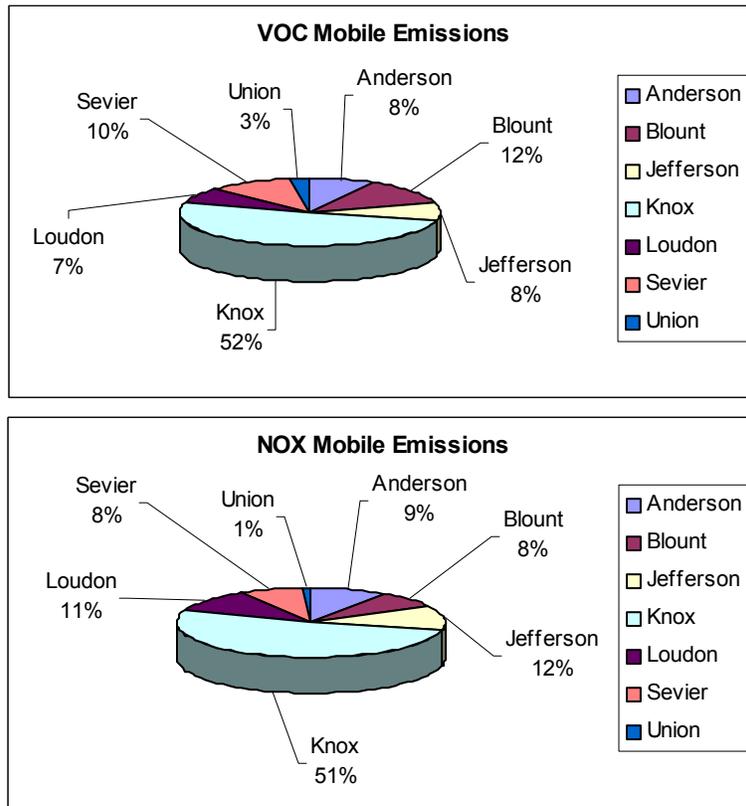


For NOX and VOC control, point sources located within Blount County are subject to Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control Technology (MACT) requirements for Hazardous Air Pollutants (HAP), and New Source Performance Standards (NSPS).

Mobile source NOX emissions from Blount County were estimated at 10.50 ton/day in 1999 which represents approximately 8% of the 136.80 ton/day of overall NOX mobile source emissions from the Knoxville MSA (see Table 1 D).

Mobile source VOC emissions from Knox County were estimated at 9.67 ton/day in 1999 which represents approximately 12% of the 77.52 ton/day of overall VOC mobile source emissions from the Knoxville MSA (see Table 1 D).

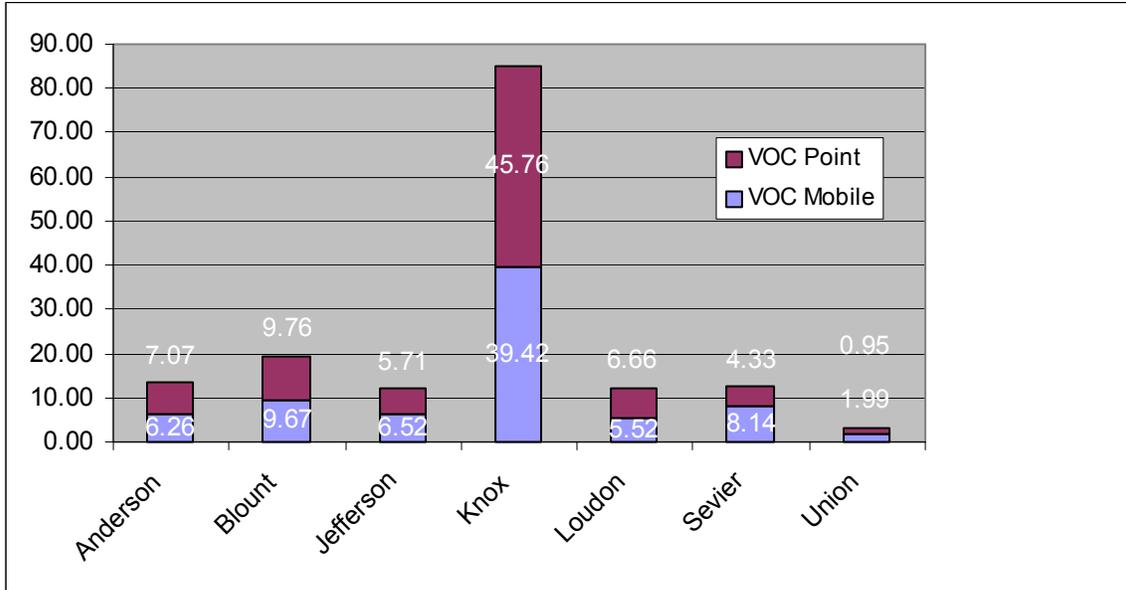
1999 NEI Mobile Source Emissions (ton/day)



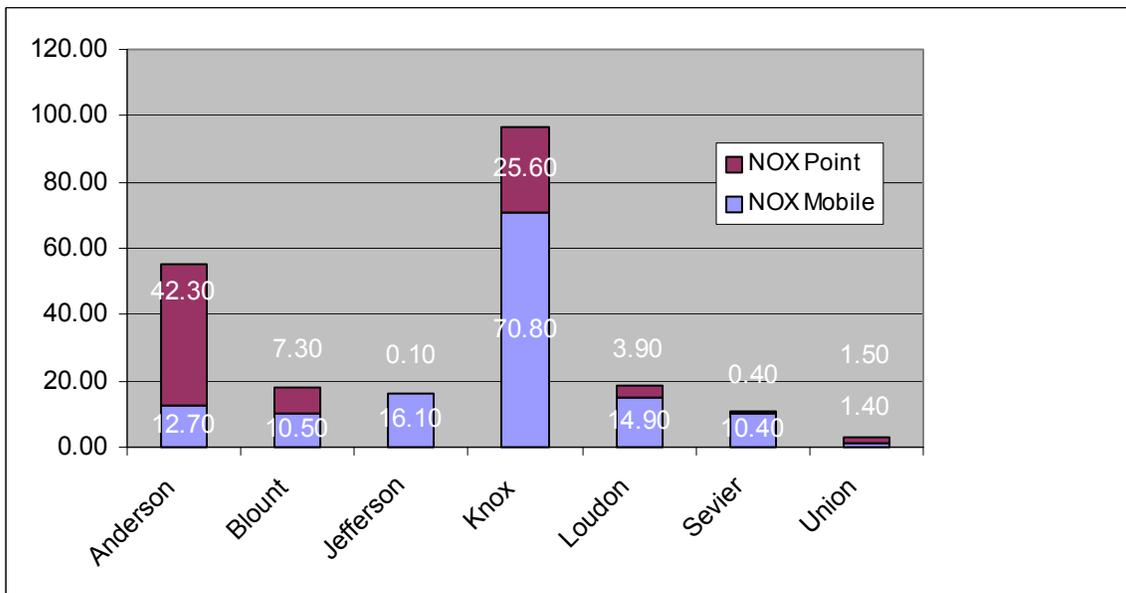
Commuting traffic from surrounding counties into Blount County is minimal. Commuting traffic from Blount County into surrounding counties is high.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

1999 NEI VOC Contribution (ton/day)



1999 NEI NOX Contribution (ton/day)



Summary

Local air pollution emission reductions for Blount County are listed in the Quantification of Control Measures Table. The local measures listed are to be implemented by the local government of Blount County. All local measures are to be implemented by ozone season of 2007, at the latest. The most desirable implementation is the soonest time possible (ideally ozone season of 2005). Local jurisdictions understand that measures are to be implemented on a schedule that concurs with the schedule in the attainment demonstration modeling.

For a Weight of Evidence Analysis, review the summary Attainment Demonstration for the Knoxville Area and see the complete Weight of Evidence discussion presented in Chapter 8 of the Modeling Analysis Technical Support Documentation (TSD) for details.

Some voluntary measures were not included in the modeling demonstration. These measures will, it is expected, create even further reductions in the ozone level of the EAC. Effectiveness of these measures may not necessarily be quantifiable, however, given the concern for air quality in the region, any reduction is viewed as positive.

Please review the detailed attainment demonstration contained in the Modeling Analysis Technical Support Documentation, which includes specific information on the EAC's control measures and subsequent ozone design value. County level endorsement of their local control measures can be found in Attachment 1.

Emission Reductions for the AS-4 EAC Attainment Strategy
Quantification of Control Measures

Control Measure by Source Category	Blount, TN		
	NOx TPD	VOC TPD	CO TPD
Area			
Open Burning Ban -resid. Garbage2A.	0.019	0.022	0.265
Open Burning Ban -yard waste2B.	0.005	0.028	0.148
Open Burning Ban - Land clearing2C.	0.265	1.026	4.800
Nonroad Mobile			
Construction Equipment (14.3 % New).	0.027	0.003	0.011
Onroad Mobile			
Truck stop electrification, 30% occupancy	0.000	0.000	0.000
Transit (increase bus ridership 5%)	0.000	0.000	0.000
Trip Reduction Programs	0.019	0.025	0.000
Traffic Flow Improvement	0.007	0.007	0.000
Ozone Action Day (Reduce VMT 1%)	0.032	0.041	0.463
Point			
50 Ton NOx/Year RACT Rule			
Becromal & Chestnut Landfill			
Alcoa	0.500	0.000	0.000
UT, St. Marys, Tamko, TSD, & CEMEX			
Kimberly Clarke & Trigen;Staley&Viskase			
Dan River			

Please see Table 7-4c on page 7-20 of the Modeling Analysis Technical Support Document for additional details and further discussion.

Jefferson County, Tennessee

Geography/Topography

Jefferson County has a land area of 274 square miles and is located in the Ridge and Valley region of the East Grand Division east of Knoxville along the I-81 corridor. It is contiguous to, but not part of, the Knoxville MSA.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Jefferson County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Jefferson County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Jefferson County is performed by the Tennessee Department of Transportation.

Air Monitoring

For the 2001-2003 monitoring period, the ozone monitor 47-089-002-1, located in Jefferson County was used. This monitor shows an 8-hour design value of 0.091 parts per million (ppm) which would be classified as nonattainment (see Table 1 A).

Population

Based on projections to 2002 from the 2000 census data, there are 45,801 persons living in Jefferson County (see Table 1 C). This indicates a population density of 167 persons per square mile. The population of Jefferson County is approximately 75.3% rural with the remaining 24.7% living in incorporated areas (see Table 1 C).

Jefferson County's population from 1990 through 2000 increased by approximately 34% (33,120 to 44,294). The population is expected to increase by 13% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, if Jefferson County were included, Jefferson County would represent approximately 6% of the total population (see Table 1 C).

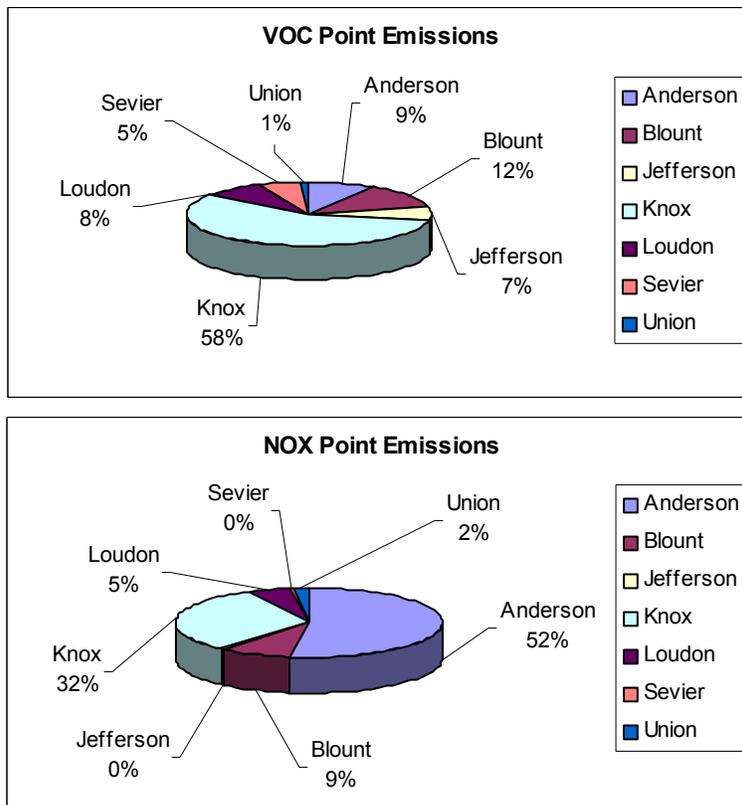
Air Emissions

All air emission estimates were derived from EPA's 1999 National Emission Inventory (NEI) database.

Point source NOX emissions from Jefferson County were estimated at 0.10 ton/day in 1999 which represents less than one percent of the 81.10 ton/day of overall NOX point source emissions from the Knoxville MSA area (see Table 1 D).

Point source VOC emissions from Jefferson County were estimated at 5.71 ton/day in 1999 which represents approximately 7% of the 80.25 ton/day of overall VOC point source emissions from the Knoxville MSA area (see Table 1 D).

1999 NEI Point Source Emissions (ton/day)



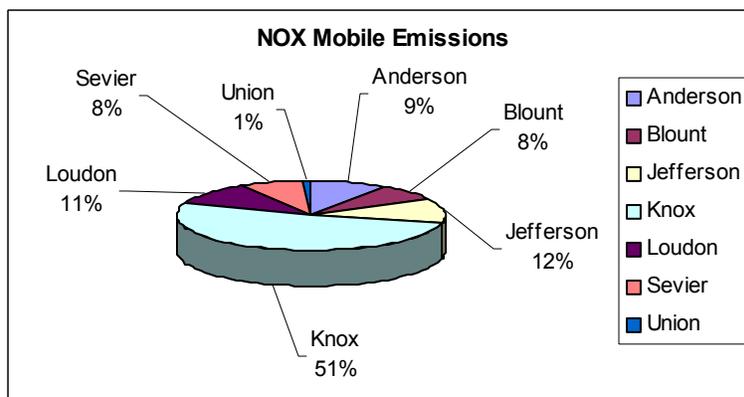
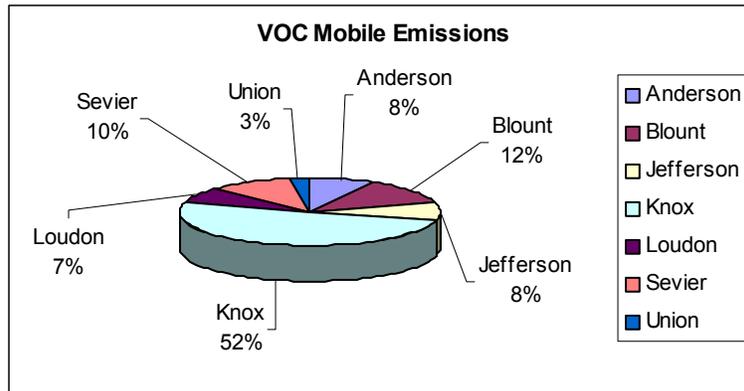
For NOX and VOC control, point sources located within Jefferson County are subject to Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control Technology (MACT) requirements

for Hazardous Air Pollutants (HAP), and New Source Performance Standards (NSPS).

Mobile source NOX emissions from Jefferson County were estimated at 16.10 ton/day in 1999 which represents approximately 12% of the 136.80 ton/day of overall NOX mobile source emissions from the Knoxville MSA area (see Table 1 D).

Mobile source VOC emissions from Jefferson County were estimated at 6.52 ton/day in 1999 which represents approximately 8% of the 77.52 ton/day of overall VOC mobile source emissions from the Knoxville MSA area (see Table 1 D).

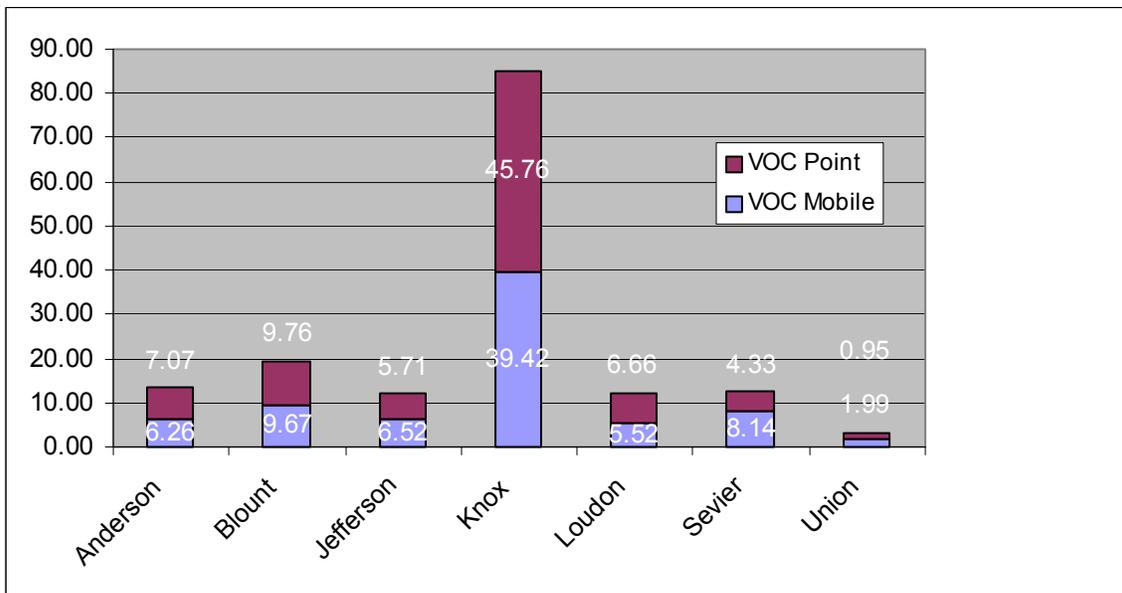
1999 NEI Mobile Source Emissions (ton/day)



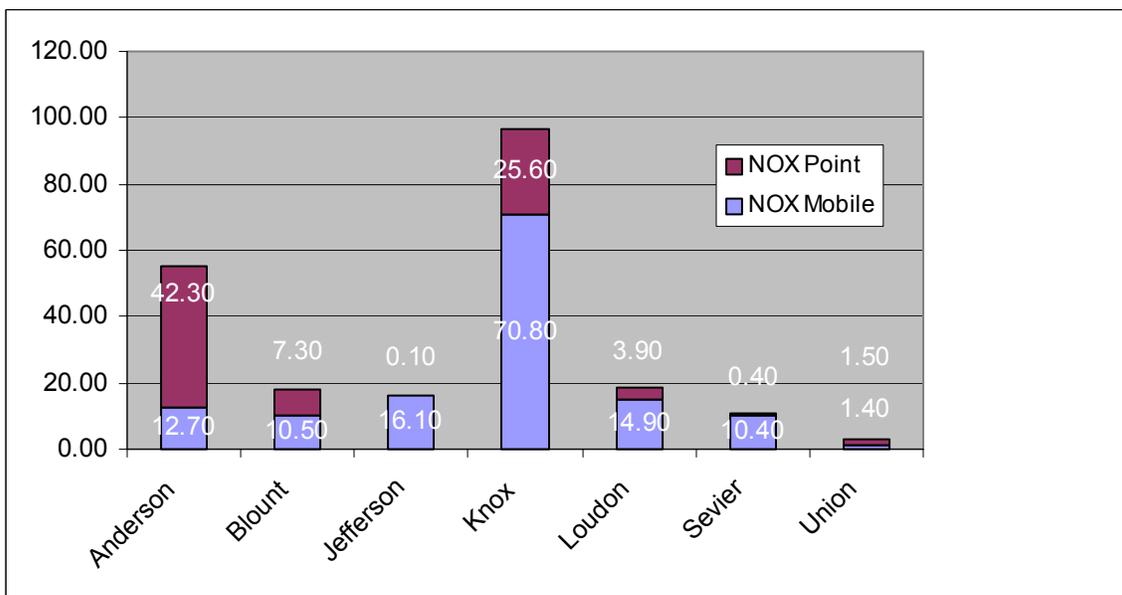
Commuting traffic from surrounding counties into Jefferson County is high.
Commuting traffic from Jefferson County into surrounding counties is significant.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

1999 NEI VOC Contribution (ton/day)



1999 NEI NOX Contribution (ton/day)



Summary

Local air pollution emission reductions for Jefferson County are listed in the Quantification of Control Measures Table. The local measures listed are to be implemented by the local government of Jefferson County. All local measures are to be implemented by ozone season of 2007, at the latest. The most desirable implementation is the soonest time possible (ideally ozone season of 2005). Local jurisdictions understand that measures are to be implemented on a schedule that concurs with the schedule in the attainment demonstration modeling.

For a Weight of Evidence Analysis, review the summary Attainment Demonstration for the Knoxville Area and see the complete Weight of Evidence discussion presented in Chapter 8 of the Modeling Analysis Technical Support Documentation (TSD) for details.

Some voluntary measures were not included in the modeling demonstration. These measures will, it is expected, create even further reductions in the ozone level of the EAC. Effectiveness of these measures may not necessarily be quantifiable, however, given the concern for air quality in the region, any reduction is viewed as positive.

Please review the detailed attainment demonstration contained in the Modeling Analysis Technical Support Documentation, which includes specific information on the EAC's control measures and subsequent ozone design value. County level endorsement of their local control measures can be found in Attachment 1.

Emission Reductions for the AS-4 EAC Attainment Strategy
Quantification of Control Measures

Control Measure by Source Category	Jefferson, TN		
	NOx TPD	VOC TPD	CO TPD
Area			
Open Burning Ban -resid. Garbage2A.	0.008	0.009	0.111
Open Burning Ban -yard waste2B.	0.002	0.012	0.062
Open Burning Ban - Land clearing2C.	0.111	0.430	3.200
Nonroad Mobile			
Construction Equipment (14.3 % New).	0.019	0.002	0.008
Onroad Mobile			
Truck stop electrification, 30% occupancy	0.171	0.016	0.144
Transit (increase bus ridership 5%)	0.000	0.000	0.000
Trip Reduction Programs	0.000	0.000	0.000
Traffic Flow Improvement	0.004	0.004	0.000
Ozone Action Day (Reduce VMT 1%)	0.028	0.037	0.414
Point			
50 Ton NOx/Year RACT Rule			
Becromal & Chestnut Landfill			
Alcoa			
UT, St. Marys, Tamko, TSD, & CEMEX			
Kimberly Clarke & Trigen;Staley&Viskase			
Dan River			

Please see Table 7-4c on page 7-20 of the Modeling Analysis Technical Support Document for additional details and further discussion.

Knox County, Tennessee

Geography/Topography

Knox County has a land area of 509 square miles and is located in the ridge and valley region of the East Grand Division along the Interstate 40 and 75 corridors. It makes up the central portion of the MSA.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Knox County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Knox County resides with the Knox County Department of Air Quality Management. Transportation planning for Knox County is performed by the Knoxville Regional Transportation Planning Organization.

Air Monitoring

For the 2001-2003 monitoring period, the ozone monitor 47-093-1020 - 1 located in Knox County shows an 8-hour design value of 0.092 parts per million (ppm) which would be classified as nonattainment (see Table 1 A).

Population

Based on projections to 2002 from the 2000 census data, there are 389,327 persons living in Knox County (see Table 1 C). This indicates a population density of 766 persons per square mile. The population of Knox County is approximately 13.1% rural with the remaining 86.9% living in incorporated areas. The largest city in Knox County is Knoxville (see Table 1 C).

Knox County's population from 1990 through 2000 increased by approximately 14% (336,610 to 382,032). The population is expected to increase by 6% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Knox County represents approximately 55% of the total MSA population (see Table 1 C).

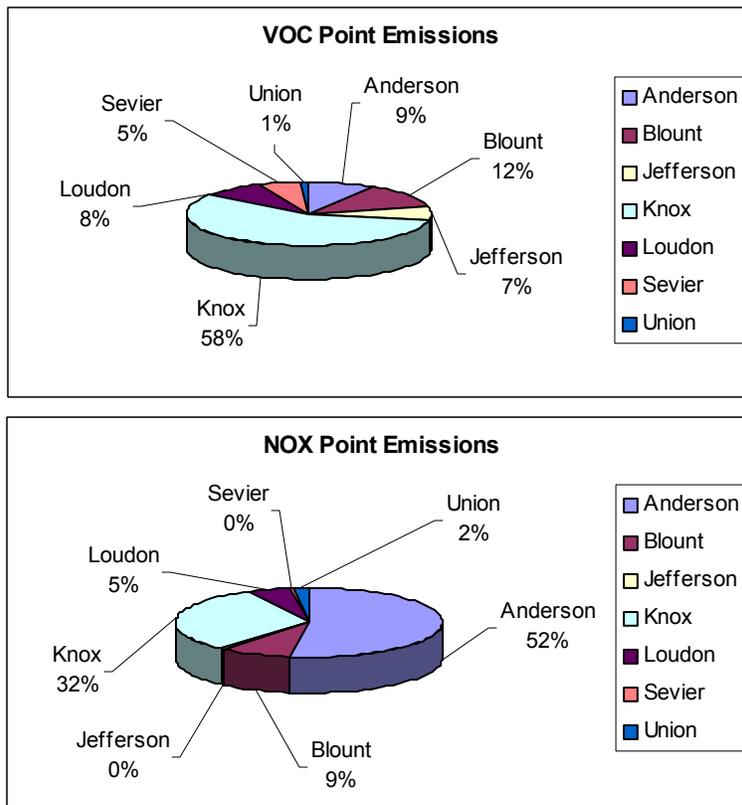
Air Emissions

All air emission estimates were derived from EPA's 1999 National Emission Inventory (NEI) database.

Point source NOX emissions from Knox County were estimated at 25.60 ton/day in 1999 which represents approximately 32% of the 81.10 ton/day of overall NOX point source emissions from the Knoxville MSA (see Table 1 D).

Point source VOC emissions from Knox County were estimated at 45.76 ton/day in 1999 which represents approximately 58% of the 80.25 ton/day of overall VOC point source emissions from the Knoxville MSA (see Table 1 D).

1999 NEI Point Source Emissions (ton/day)

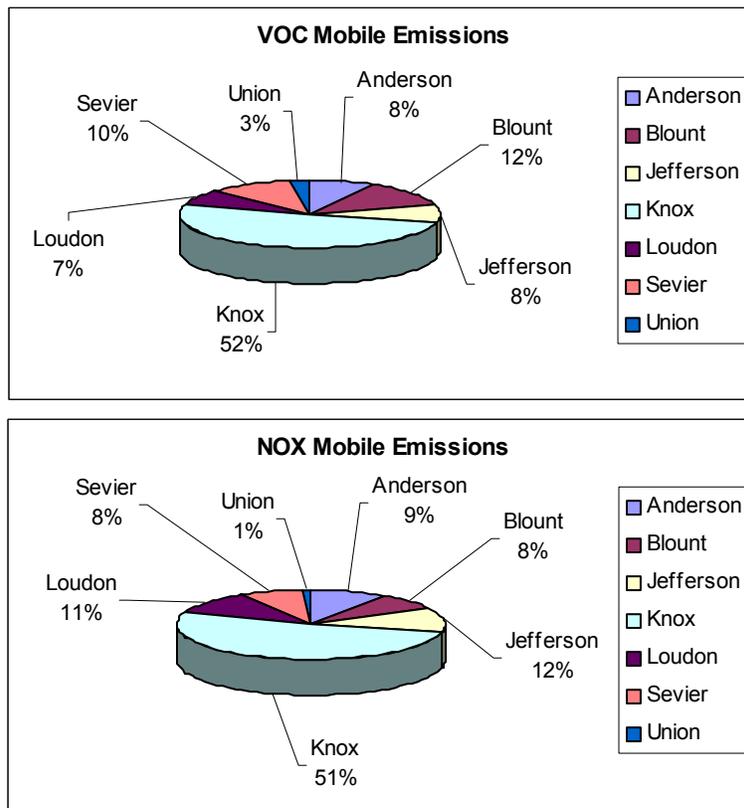


For NOX and VOC control, point sources located within Knox County are subject to Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control Technology (MACT) requirements for Hazardous Air Pollutants (HAP), and New Source Performance Standards (NSPS).

Mobile source NOX emissions from Knox County were estimated at 70.80 ton/day in 1999 which represents approximately 51% of the 136.80 ton/day of overall NOX mobile source emissions from the Knoxville MSA (see Table 1 D).

Mobile source VOC emissions from Knox County were estimated at 39.42 ton/day in 1999 which represents approximately 52% of the 77.52 ton/day of overall VOC mobile source emissions from the Knoxville MSA (see Table 1 D).

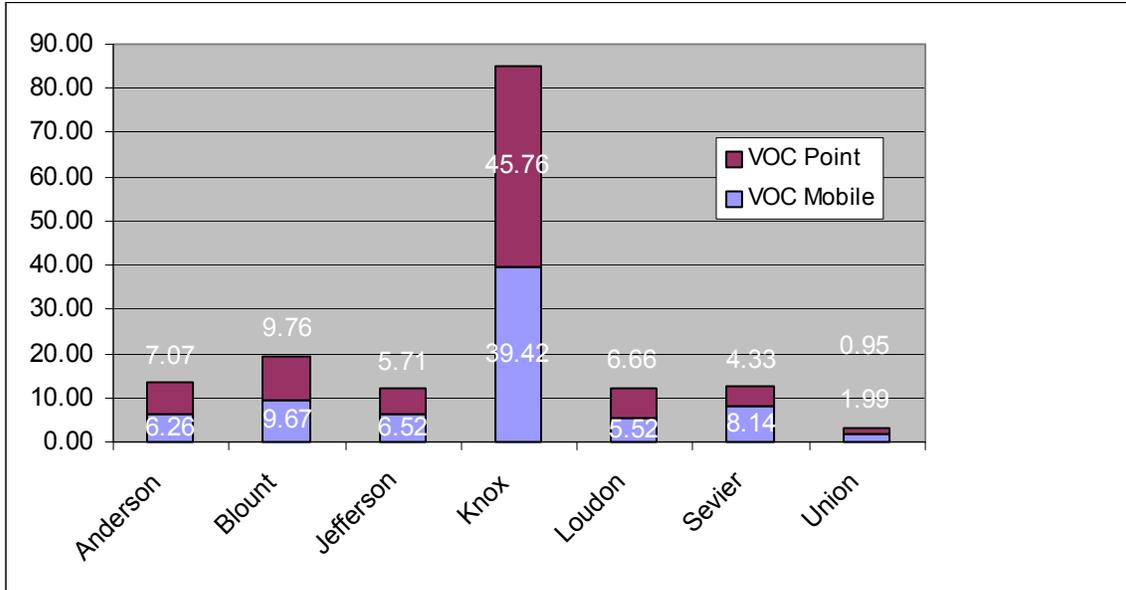
1999 NEI Mobile Source Emissions (ton/day)



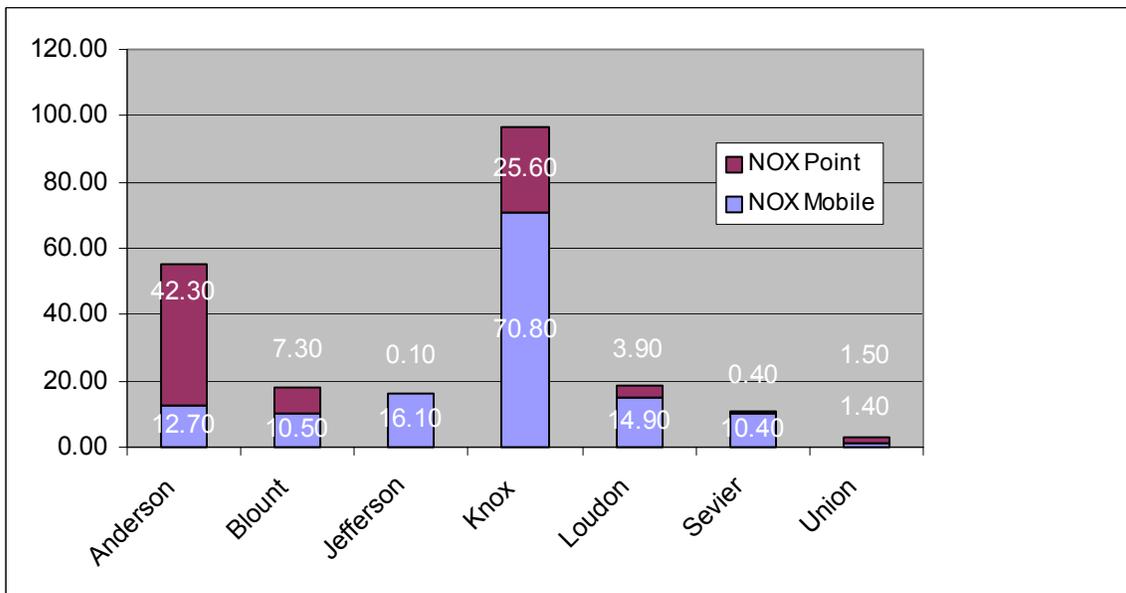
Commuting traffic from surrounding counties into Knox County is minimal. Commuting traffic from Knox County into surrounding counties is minimal.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

1999 NEI VOC Contribution (ton/day)



1999 NEI NOX Contribution (ton/day)



Summary

Local air pollution emission reductions for Knox County are listed in the Quantification of Control Measures Table. The local measures listed are to be implemented by the local government of Knox County. All local measures are to be implemented by ozone season of 2007, at the latest. The most desirable implementation is the soonest time possible (ideally ozone season of 2005). Local jurisdictions understand that measures are to be implemented on a schedule that concurs with the schedule in the attainment demonstration modeling.

For a Weight of Evidence Analysis, review the summary Attainment Demonstration for the Knoxville Area and see the complete Weight of Evidence discussion presented in Chapter 8 of the Modeling Analysis Technical Support Documentation (TSD) for details.

Some voluntary measures were not included in the modeling demonstration. These measures will, it is expected, create even further reductions in the ozone level of the EAC. Effectiveness of these measures may not necessarily be quantifiable, however, given the concern for air quality in the region, any reduction is viewed as positive.

Please review the detailed attainment demonstration contained in the Modeling Analysis Technical Support Documentation, which includes specific information on the EAC's control measures and subsequent ozone design value. County level endorsement of their local control measures can be found in Attachment 1.

Emission Reductions for the AS-4 EAC Attainment Strategy
Quantification of Control Measures

Control Measure by Source Category	Knox, TN		
	NOx TPD	VOC TPD	CO TPD
Area			
Open Burning Ban -resid. Garbage2A.	0.000	0.000	0.000
Open Burning Ban -yard waste2B.	0.000	0.000	0.000
Open Burning Ban - Land clearing2C.	0.955	3.706	21.500
Nonroad Mobile			
Construction Equipment (14.3 % New).	0.140	0.017	0.063
Onroad Mobile			
Truck stop electrification, 30% occupancy	0.300	0.029	0.253
Transit (increase bus ridership 5%)	0.001	0.001	0.012
Trip Reduction Programs	0.091	0.125	0.000
Traffic Flow Improvement	0.017	0.018	0.000
Ozone Action Day (Reduce VMT 1%)	0.157	0.204	2.281
Point			
50 Ton NOx/Year RACT Rule			
Becromal & Chestnut Landfill			
Alcoa			
UT, St. Marys, Tamko, TSD, & CEMEX	1.580	0.013	0.280
Kimberly Clarke & Trigen;Staley&Viskase			
Dan River			

Please see Table 7-4c on page 7-20 of the Modeling Analysis Technical Support Document for additional details and further discussion.

Loudon County, Tennessee

Geography/Topography

Loudon County has a land area of 229 square miles and is located in the ridge and valley region of the East Grand Division along the Interstate 75 corridor southwest of Knoxville. It makes up the southwest portion of the MSA.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Loudon County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Loudon County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Loudon County is performed by the Tennessee Department of Transportation.

Air Monitoring

Loudon County, part of the Knoxville MSA, does not have an ozone monitor. For this reason the highest reading low elevation monitor not located in the Great Smoky Mountains National Park within the MSA was used. For the 2001-2003 monitoring period, the ozone monitor 470931020 – 1, located in Knox County was used. This monitor shows an 8-hour design value of 0.092 parts per million (ppm) which would be classified as nonattainment (see Table 1 A).

Population

Based on projections to 2002 from the 2000 census data, there are 40,631 persons living in Loudon County (see Table 1 C). This indicates a population density of 178 persons per square mile. The population of Loudon County is approximately 50% rural with the remaining 50% living in incorporated areas. The largest city in Loudon County is Lenoir City (see Table 1 C).

Loudon County's population from 1990 through 2000 increased by approximately 24% (31,411 to 39,086). The population is expected to increase by 15% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Loudon County represents approximately 6% of the total MSA population (see Table 1 C).

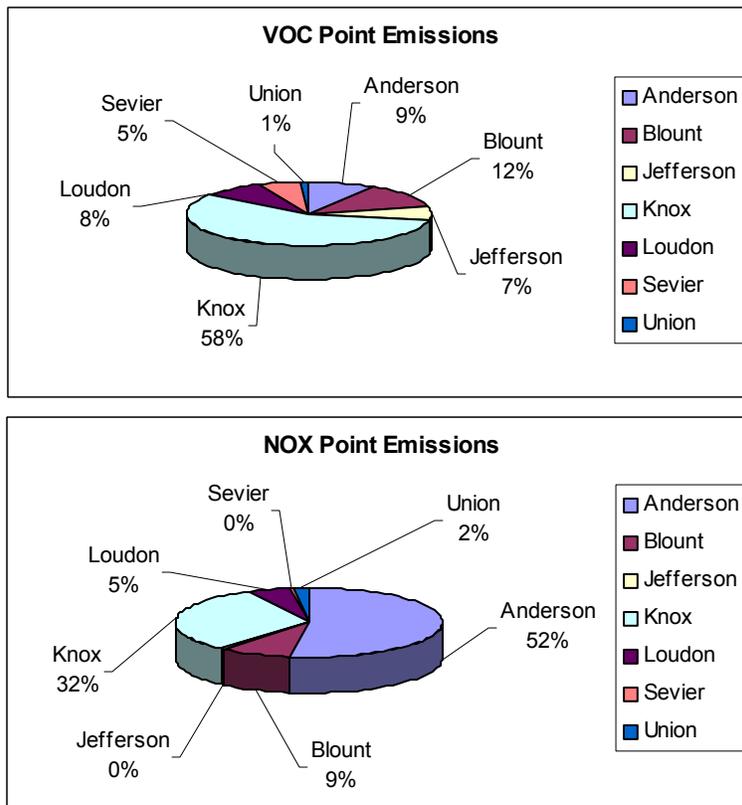
Air Emissions

All air emission estimates were derived from EPA's 1999 National Emission Inventory (NEI) database.

Point source NOX emissions from Loudon County were estimated at 3.90 ton/day in 1999 which represents approximately 5% of the 81.10 ton/day of overall NOX point source emissions from the Knoxville MSA (see Table 1 D).

Point source VOC emissions from Loudon County were estimated at 6.66 ton/day in 1999 which represents approximately 8% of the 80.25 ton/day of overall VOC point source emissions from the Knoxville MSA (see Table 1 D).

1999 NEI Point Source Emissions (ton/day)

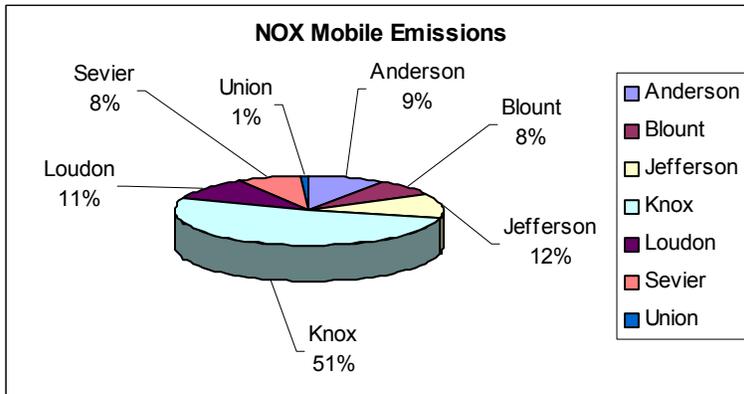
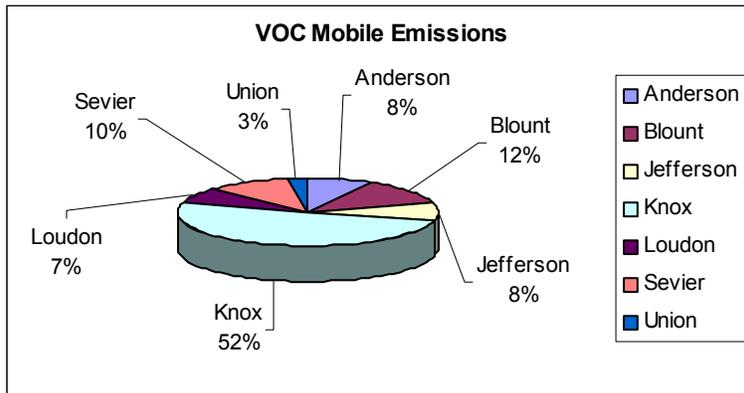


For NOX and VOC control, point sources located within Loudon County are subject to Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control Technology (MACT) requirements for Hazardous Air Pollutants (HAP), and New Source Performance Standards (NSPS).

Mobile source NOX emissions from Loudon County were estimated at 14.90 ton/day in 1999 which represents approximately 11% of the 136.80 ton/day of overall NOX mobile source emissions from the Knoxville MSA (see Table 1 D).

Mobile source VOC emissions from Loudon County were estimated at 5.52 ton/day in 1999 which represents approximately 7% of the 77.52 ton/day of overall VOC mobile source emissions from the Knoxville MSA (see Table 1 D).

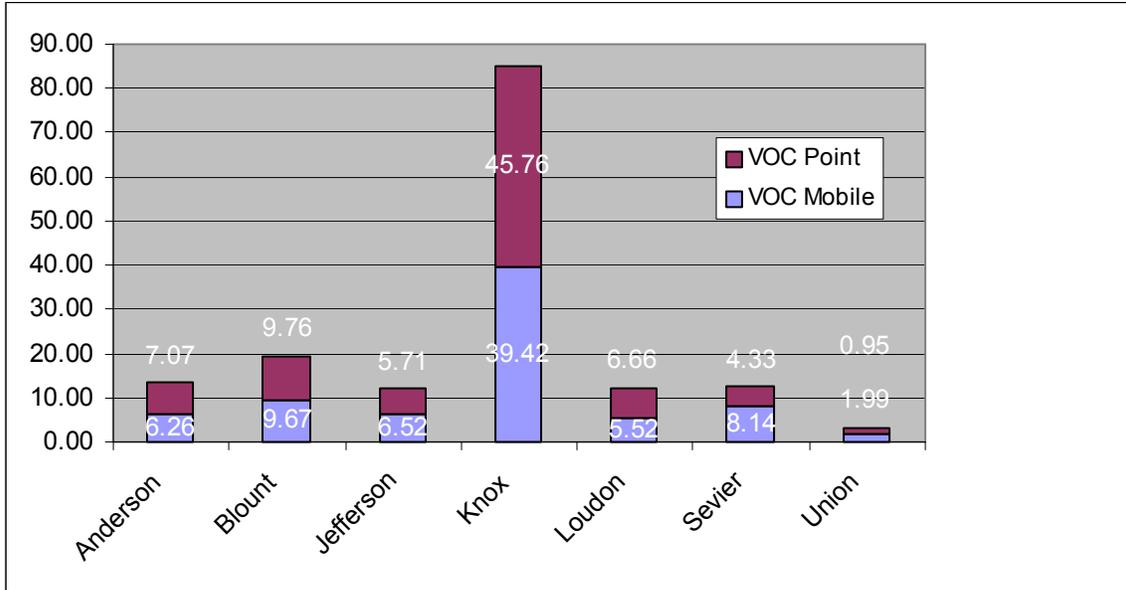
1999 NEI Mobile Source Emissions (ton/day)



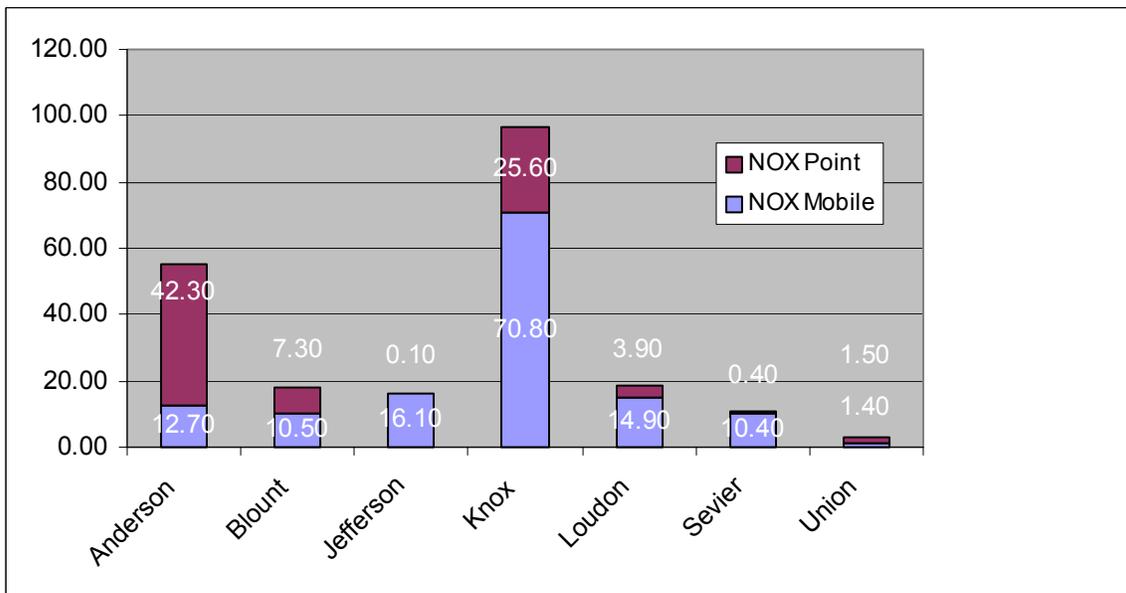
Commuting traffic from surrounding counties into Loudon County is high. Commuting traffic from Loudon County into surrounding counties is high.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

1999 NEI VOC Contribution (ton/day)



1999 NEI NOX Contribution (ton/day)



Summary

Local air pollution emission reductions for Loudon County are listed in the Quantification of Control Measures Table. The local measures listed are to be implemented by the local government of Loudon County. All local measures are to be implemented by ozone season of 2007, at the latest. The most desirable implementation is the soonest time possible (ideally ozone season of 2005). Local jurisdictions understand that measures are to be implemented on a schedule that concurs with the schedule in the attainment demonstration modeling.

For a Weight of Evidence Analysis, review the summary Attainment Demonstration for the Knoxville Area and see the complete Weight of Evidence discussion presented in Chapter 8 of the Modeling Analysis Technical Support Documentation (TSD) for details.

Some voluntary measures were not included in the modeling demonstration. These measures will, it is expected, create even further reductions in the ozone level of the EAC. Effectiveness of these measures may not necessarily be quantifiable, however, given the concern for air quality in the region, any reduction is viewed as positive.

Please review the detailed attainment demonstration contained in the Modeling Analysis Technical Support Documentation, which includes specific information on the EAC's control measures and subsequent ozone design value. County level endorsement of their local control measures can be found in Attachment 1.

Emission Reductions for the AS-4 EAC Attainment Strategy
Quantification of Control Measures

Control Measure by Source Category	Loudon, TN		
	NOx TPD	VOC TPD	CO TPD
Area			
Open Burning Ban -resid. Garbage2A.	0.007	0.008	0.098
Open Burning Ban -yard waste2B.	0.002	0.010	0.055
Open Burning Ban - Land clearing2C.	0.098	0.379	1.900
Nonroad Mobile			
Construction Equipment (14.3 % New).	0.007	0.001	0.003
Onroad Mobile			
Truck stop electrification, 30% occupancy	0.129	0.012	0.109
Transit (increase bus ridership 5%)	0.000	0.000	0.000
Trip Reduction Programs	0.000	0.000	0.000
Traffic Flow Improvement	0.003	0.003	0.000
Ozone Action Day (Reduce VMT 1%)	0.024	0.032	0.353
Point			
50 Ton NOx/Year RACT Rule			
Becromal & Chestnut Landfill			
Alcoa			
UT, St. Marys, Tamko, TSD, & CEMEX			
Kimberly Clarke & Trigen;Staley&Viskase	3.550	0.000	0.000
Dan River			

Please see Table 7-4c on page 7-20 of the Modeling Analysis Technical Support Document for additional details and further discussion.

Sevier County, Tennessee

Geography/Topography

Sevier County has a land area of 592 square miles and is located in the ridge and valley region of the East Grand Division of the state southeast of Knoxville. It is located in the southeast portion of the MSA, and the southeast portion of the county is in elevated terrain within the boundary of the Great Smoky Mountains NP.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Sevier County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Sevier County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Sevier County is performed by the Tennessee Department of Transportation.

Air Monitoring

Sevier County, part of the Knoxville MSA, has two ozone monitors in the Great Smoky Mountains National Park. These sites are at higher elevations than most of the county's population centers. Tennessee, North Carolina, the National Park Service, and EPA are currently negotiating a policy regarding park monitors, especially the higher elevation sites. After this negotiation phase is completed, Tennessee will submit additional documentation and justification for handling the park monitoring sites through a different process.

For this reason the highest reading low elevation monitor not located in the Great Smoky Mountains National Park within the MSA was used. For the 2001-2003 monitoring period, the ozone monitor 470931020 – 1, located in Knox County was used. This monitor shows an 8-hour design value of 0.092 parts per million (ppm) which would be classified as nonattainment (see Table 1 A).

Population

Based on projections to 2002 from the 2000 census data, there are 74,456 persons living in Sevier County (see Table 1 C). This indicates a population density of 126 persons per square mile. The population of Sevier County is approximately 65% rural with the remaining 35% living in incorporated areas. The largest cities in Sevier County are Sevierville, Pigeon Forge and Gatlinburg (see Table 1 C).

Sevier County's population from 1990 through 2000 increased by approximately 39% (51,368 to 71,170). The population is expected to increase by 15% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Sevier County represents approximately 11% of the total MSA population (see Table 1 C).

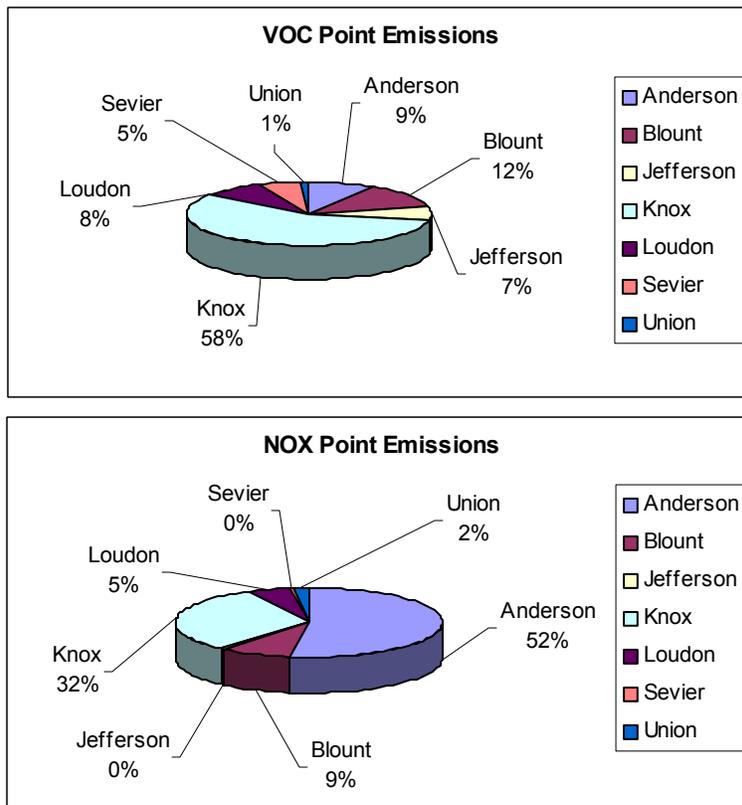
Air Emissions

All air emission estimates were derived from EPA's 1999 National Emission Inventory (NEI) database.

Point source NOX emissions from Sevier County were estimated at 0.40 ton/day in 1999 which represents less than one percent of the 81.10 ton/day of overall NOX point source emissions from the Knoxville MSA (see Table 1 D).

Point source VOC emissions from Sevier County were estimated at 4.33 ton/day in 1999 which represents approximately 5% of the 80.25 ton/day of overall VOC point source emissions from the Knoxville MSA (see Table 1 D).

1999 NEI Point Source Emissions (ton/day)

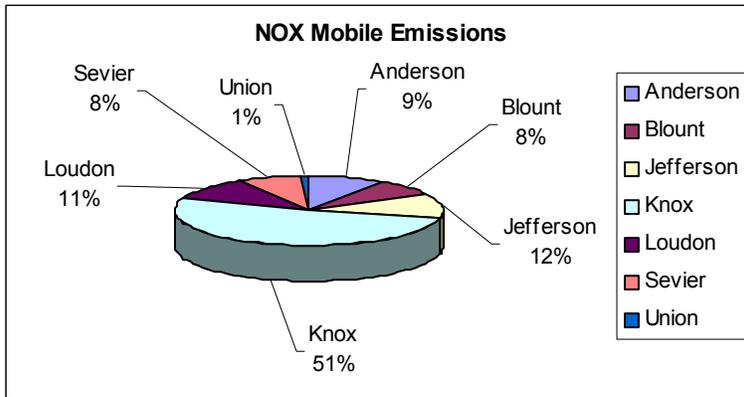
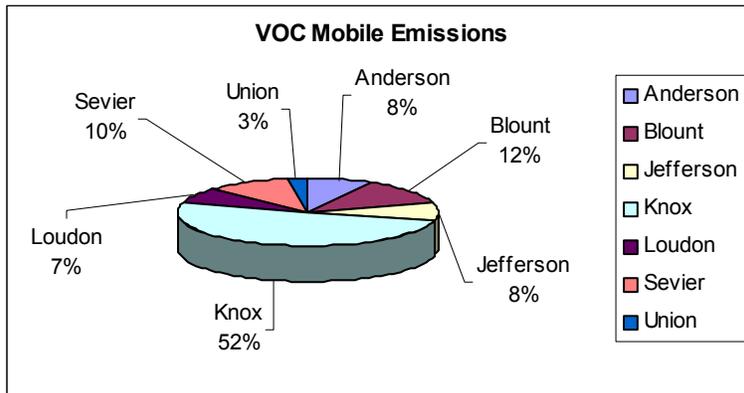


For NOX and VOC control, point sources located within Sevier County are subject to Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control Technology (MACT) requirements for Hazardous Air Pollutants (HAP), and New Source Performance Standards (NSPS).

Mobile source NOX emissions from Sevier County were estimated at 10.40 ton/day in 1999 which represents approximately 8% of the 136.80 ton/day of overall NOX mobile source emissions from the Knoxville MSA (see Table 1 D).

Mobile source VOC emissions from Sevier County were estimated at 8.14 ton/day in 1999 which represents approximately 10% of the 77.52 ton/day of overall VOC mobile source emissions from the Knoxville MSA (see Table 1 D).

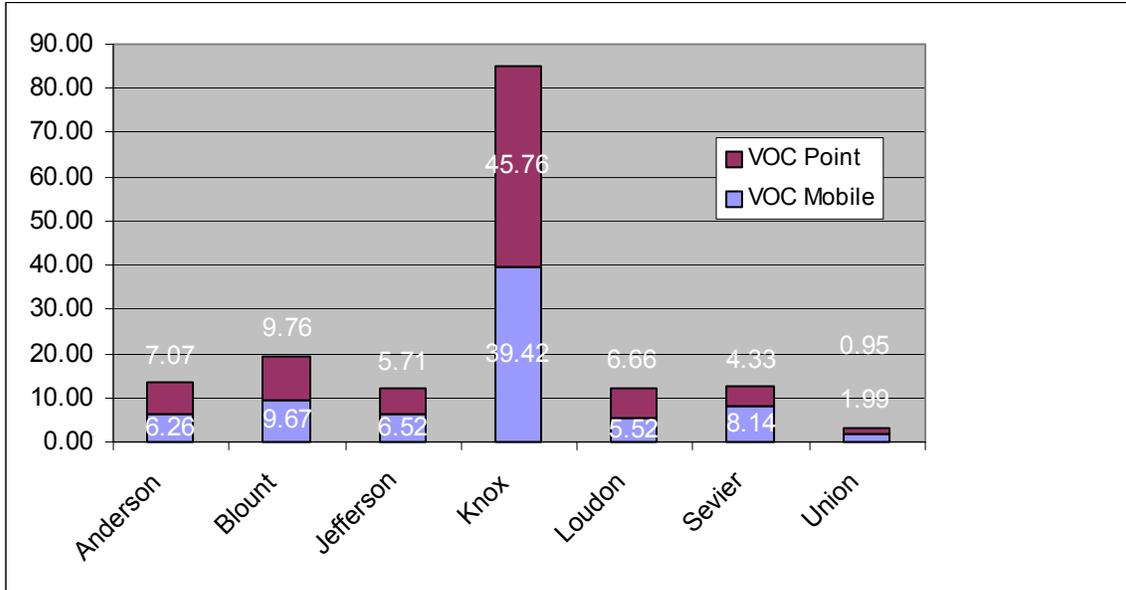
1999 NEI Mobile Source Emissions (ton/day)



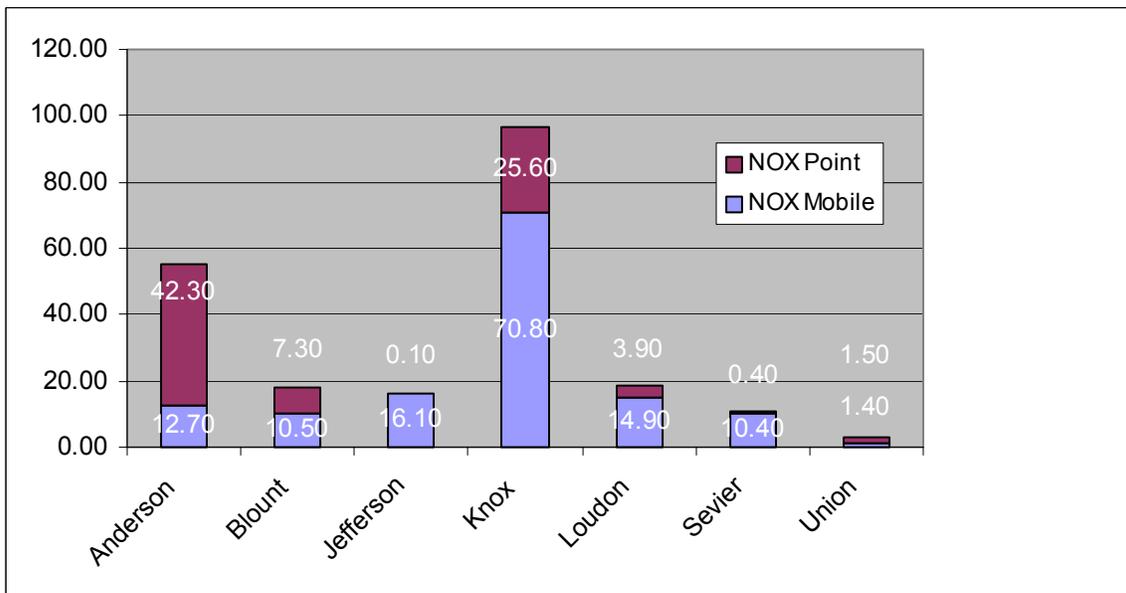
Commuting traffic from surrounding counties into Sevier County is minimal. Commuting traffic from Sevier County into surrounding counties is minimal.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

1999 NEI VOC Contribution (ton/day)



1999 NEI NOX Contribution (ton/day)



Summary

Local air pollution emission reductions for Sevier County are listed in the Quantification of Control Measures Table. The local measures listed are to be implemented by the local government of Sevier County. All local measures are to be implemented by ozone season of 2007, at the latest. The most desirable implementation is the soonest time possible (ideally ozone season of 2005). Local jurisdictions understand that measures are to be implemented on a schedule that concurs with the schedule in the attainment demonstration modeling.

For a Weight of Evidence Analysis, review the summary Attainment Demonstration for the Knoxville Area and see the complete Weight of Evidence discussion presented in Chapter 8 of the Modeling Analysis Technical Support Documentation (TSD) for details.

Some voluntary measures were not included in the modeling demonstration. These measures will, it is expected, create even further reductions in the ozone level of the EAC. Effectiveness of these measures may not necessarily be quantifiable, however, given the concern for air quality in the region, any reduction is viewed as positive.

Please review the detailed attainment demonstration contained in the Modeling Analysis Technical Support Documentation, which includes specific information on the EAC's control measures and subsequent ozone design value. County level endorsement of their local control measures can be found in Attachment 1.

Emission Reductions for the AS-4 EAC Attainment Strategy
Quantification of Control Measures

Control Measure by Source Category	Sevier, TN		
	NOx TPD	VOC TPD	CO TPD
Area			
Open Burning Ban -resid. Garbage2A.	0.012	0.015	0.178
Open Burning Ban -yard waste2B.	0.003	0.019	0.100
Open Burning Ban - Land clearing2C.	0.178	0.690	3.200
Nonroad Mobile			
Construction Equipment (14.3 % New).	0.033	0.004	0.015
Onroad Mobile			
Truck stop electrification, 30% occupancy	0.026	0.002	0.022
Transit (increase bus ridership 5%)	0.000	0.000	0.000
Trip Reduction Programs	0.000	0.000	0.000
Traffic Flow Improvement	0.007	0.008	0.000
Ozone Action Day (Reduce VMT 1%)	0.032	0.041	0.462
Point			
50 Ton NOx/Year RACT Rule			
Becromal & Chestnut Landfill			
Alcoa			
UT, St. Marys, Tamko, TSD, & CEMEX			
Kimberly Clarke & Trigen;Staley&Viskase			
Dan River	0.190	0.000	0.000

Please see Table 7-4c on page 7-20 of the Modeling Analysis Technical Support Document for additional details and further discussion.

Union County, Tennessee

Geography/Topography

Union County has a land area of 224 square miles and is located in the ridge and valley region of the East Grand Division of the state north of Knoxville. It makes up the north portion of the MSA.

Meteorological Information

Wind data from Knoxville, TN for the period of record from 1988 through 1992 was determined to be representative for Union County. The predominate wind direction and speed is from the southwest at 7 to 10 knots (see Figure 1 A). The mean high temperature for July is 86.9 F, while the mean low is 68.5 F. The mean July precipitation is 4.7 inches. The period of record for this data is from 1971 through 2000.

Planning Authority

The authority for air quality planning for Union County resides with the Tennessee Department of Environment and Conservation. Transportation planning for Union County is performed by the Tennessee Department of Transportation.

Air Monitoring

Union County, part of the Knoxville MSA, does not have an ozone monitor. For this reason the highest reading low elevation monitor not located in the Great Smoky Mountains National Park within the MSA was used. For the 2001-2003 monitoring period, the ozone monitor 470931020 – 1, located in Knox County was used. This monitor shows an 8-hour design value of 0.092 parts per million (ppm) which would be classified as nonattainment (see Table 1 A).

Population

Based on projections to 2002 from the 2000 census data, there are 18,541 persons living in Union County (see Table 1 C). This indicates a population density of 83 persons per square mile. The population of Union County is located in almost entirely rural areas. The largest cities in Union County is Plainview (see Table 1 C).

Union County's population from 1990 through 2000 increased by approximately 30% (13,739 to 17,808). The population is expected to increase by 14% between 2000 and 2010 (see Table 1 B).

Based on the 2002 population data for the entire Knoxville MSA, Union County represents approximately 3% of the total MSA population (see Table 1 C).

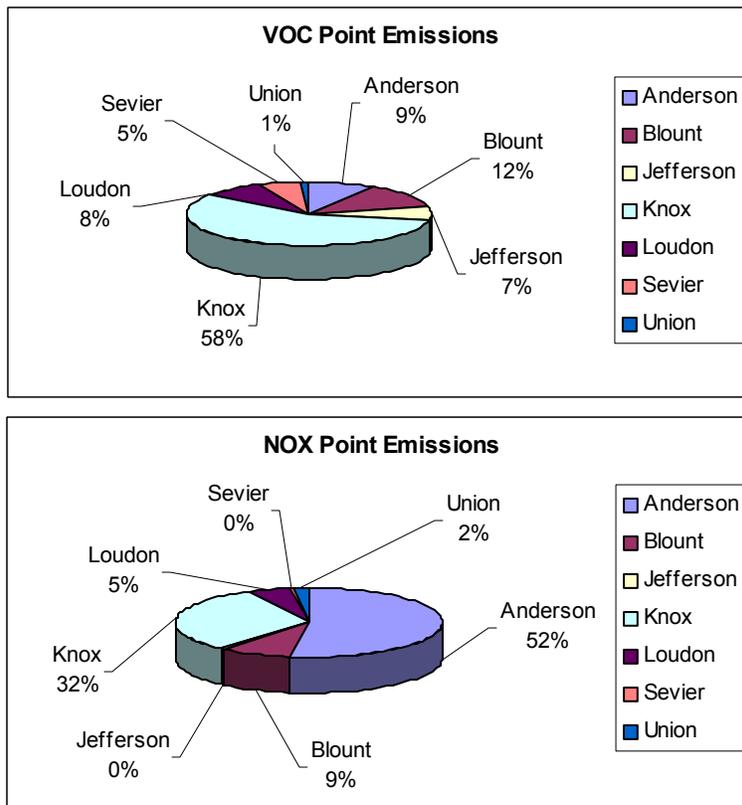
Air Emissions

All air emission estimates were derived from EPA's 1999 National Emission Inventory (NEI) database.

Point source NOX emissions from Union County were estimated at 1.5 ton/day in 1999 which represents approximately 2% of the 81.10 ton/day of overall NOX point source emissions from the Knoxville MSA (see Table 1 D).

Point source VOC emissions from Union County were estimated at 0.95 ton/day in 1999 which represents approximately 1% of the 80.25 ton/day of overall VOC point source emissions from the Knoxville MSA (see Table 1 D).

1999 NEI Point Source Emissions (ton/day)

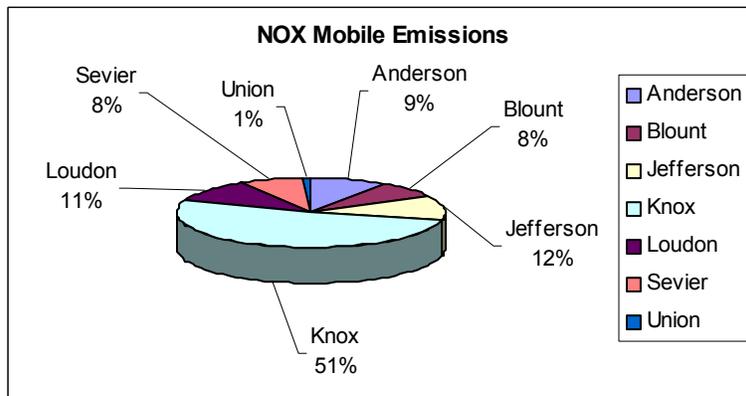
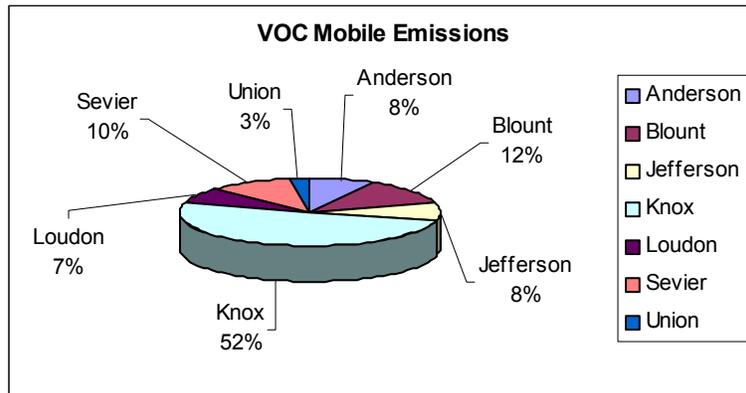


For NOX and VOC control, point sources located within Union County are subject to Prevention of Significant Deterioration (PSD) requirements, Control Technology Guideline Reasonable Available Control Technology (CTG RACT) requirements, Maximum Achievable Control Technology (MACT) requirements for Hazardous Air Pollutants (HAP), and New Source Performance Standards (NSPS).

Mobile source NOX emissions from Union County were estimated at 1.40 ton/day in 1999 which represents approximately 1% of the 136.80 ton/day of overall NOX mobile source emissions from the Knoxville MSA (see Table 1 D).

Mobile source VOC emissions from Union County were estimated at 1.99 ton/day in 1999 which represents approximately 3% of the 77.52 ton/day of overall VOC mobile source emissions from the Knoxville MSA (see Table 1 D).

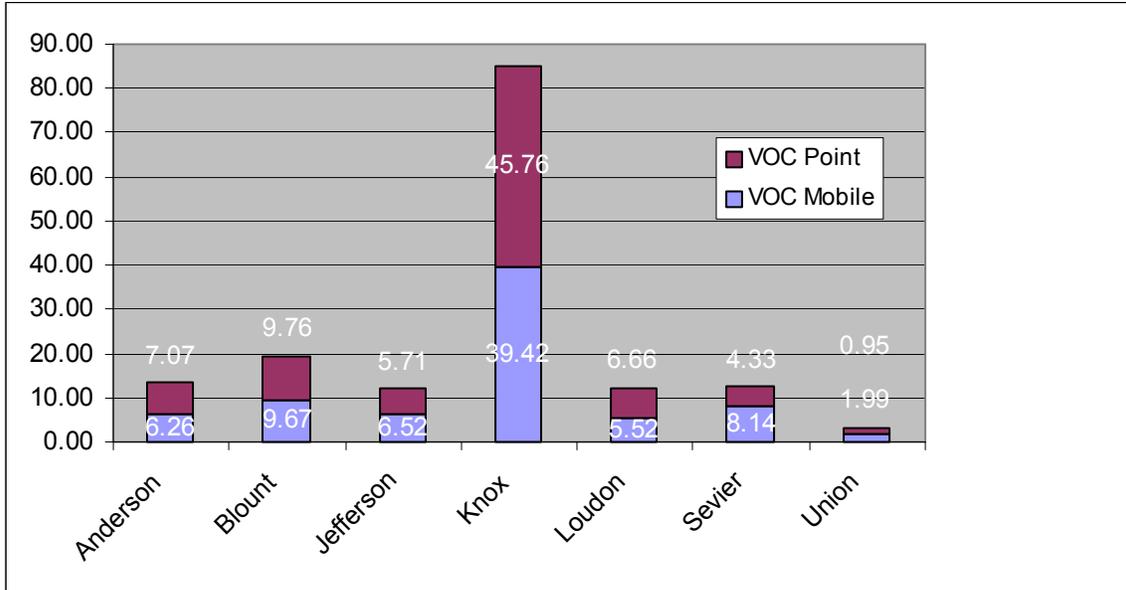
1999 NEI Mobile Source Emissions (ton/day)



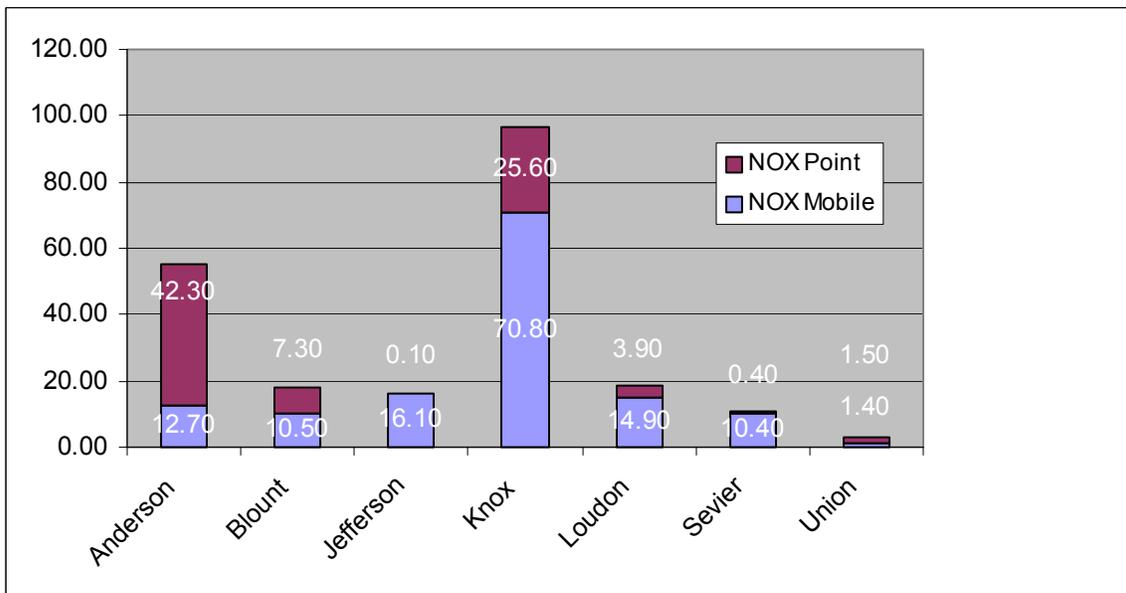
Commuting traffic from surrounding counties into Union County is minimal. Commuting traffic from Union County into surrounding counties is high.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

1999 NEI VOC Contribution (ton/day)



1999 NEI NOX Contribution (ton/day)



Summary

Local air pollution emission reductions for Union County are listed in the Quantification of Control Measures Table. The local measures listed are to be implemented by the local government of Union County. All local measures are to be implemented by ozone season of 2007, at the latest. The most desirable implementation is the soonest time possible (ideally ozone season of 2005). Local jurisdictions understand that measures are to be implemented on a schedule that concurs with the schedule in the attainment demonstration modeling.

For a Weight of Evidence Analysis, review the summary Attainment Demonstration for the Knoxville Area and see the complete Weight of Evidence discussion presented in Chapter 8 of the Modeling Analysis Technical Support Documentation (TSD) for details.

Some voluntary measures were not included in the modeling demonstration. These measures will, it is expected, create even further reductions in the ozone level of the EAC. Effectiveness of these measures may not necessarily be quantifiable, however, given the concern for air quality in the region, any reduction is viewed as positive.

Please review the detailed attainment demonstration contained in the Modeling Analysis Technical Support Documentation, which includes specific information on the EAC's control measures and subsequent ozone design value. County level endorsement of their local control measures can be found in Attachment 1.

Emission Reductions for the AS-4 EAC Attainment Strategy
Quantification of Control Measures

Control Measure by Source Category	Union, TN		
	NOx TPD	VOC TPD	CO TPD
Area			
Open Burning Ban -resid. Garbage2A.	0.003	0.004	0.045
Open Burning Ban -yard waste2B.	0.001	0.005	0.025
Open Burning Ban - Land clearing2C.	0.045	0.173	1.100
Nonroad Mobile			
Construction Equipment (14.3 % New).	0.002	0.000	0.000
Onroad Mobile			
Truck stop electrification, 30% occupancy	0.000	0.000	0.000
Transit (increase bus ridership 5%)	0.000	0.000	0.000
Trip Reduction Programs	0.000	0.000	0.000
Traffic Flow Improvement	0.001	0.001	0.000
Ozone Action Day (Reduce VMT 1%)	0.004	0.005	0.056
Point			
50 Ton NOx/Year RACT Rule			
Becromal & Chestnut Landfill			
Alcoa			
UT, St. Marys, Tamko, TSD, & CEMEX			
Kimberly Clarke & Trigen;Staley&Viskase			
Dan River	0.000	0.000	0.000

Please see Table 7-4c on page 7-20 of the Modeling Analysis Technical Support Document for additional details and further discussion.

Knoxville MSA and Jefferson County

Figure 1 A
Knoxville MSA and Jefferson County
Wind Rose

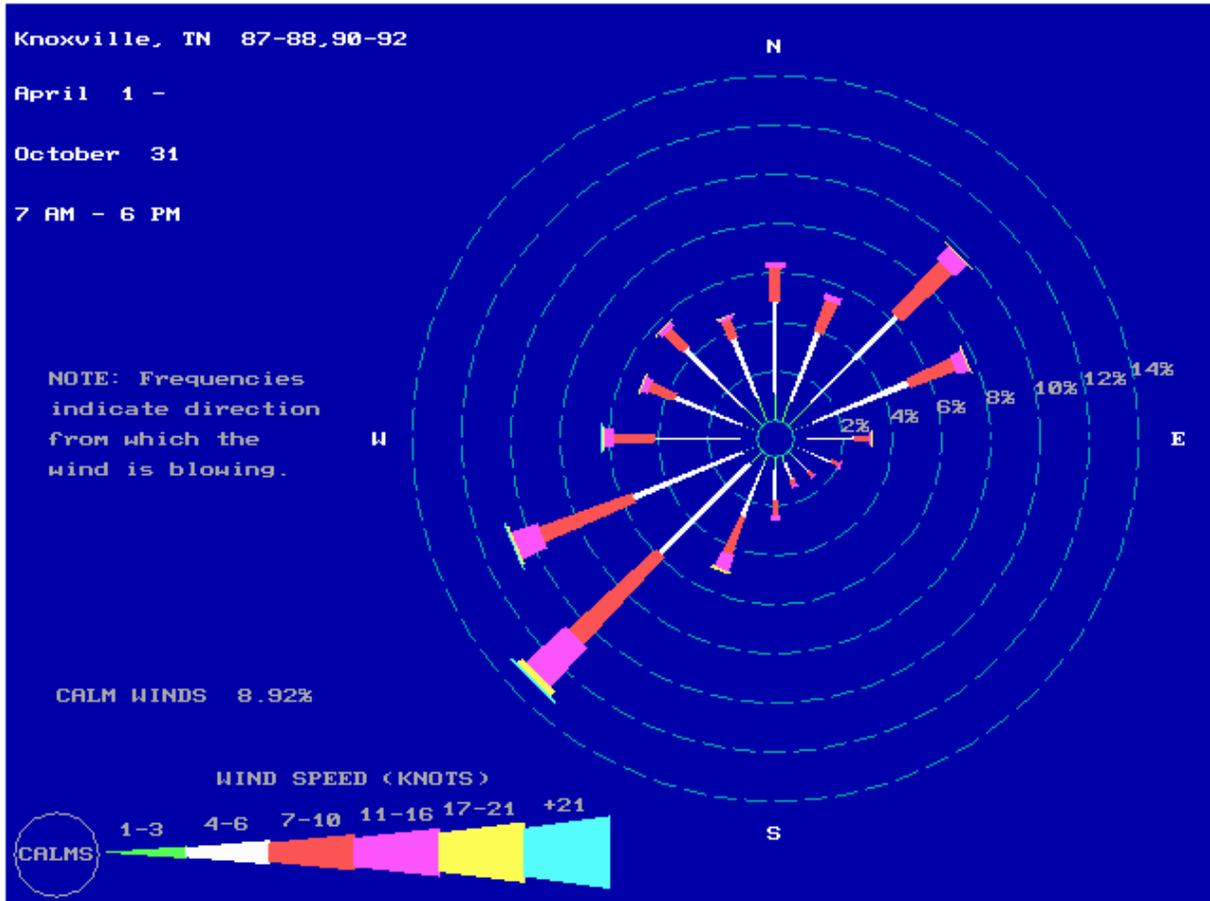


Figure 1 B
Knoxville MSA and Jefferson County
1999 NEI VOC and NOX Emissions
(ton/day)

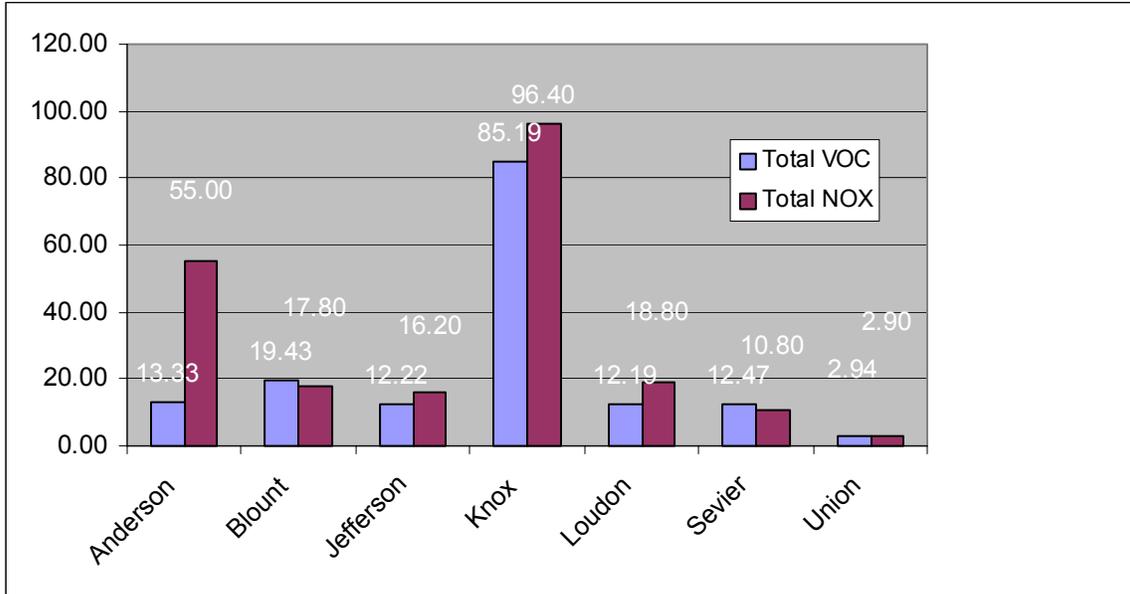


Table 1 A
Knoxville MSA and Jefferson County
Ozone Design Values
(ppm)

County	Site Name	MONITOR ID	1999 2001 Design Value PPM	2000 2002 Design Value PPM	2001 2003 Design Value PPM
Anderson	Freels Bend Study Area Melton Lake	470010101 - 1	0.090	0.092	0.087
Blount	Great Smoky Mountains NP - Look Rock	470090101 - 1	0.096	0.094	0.093
Blount	Great Smoky Mountains NP - Cades Cove	470090102 - 1	0.081	0.079	0.076
Jefferson	1188 Lost Creek Rd	470890002 - 1	0.096	0.095	0.091
Knox	9315 Rutledge Pike Mascot Tn 37806	470930021 - 1	0.093	0.092	0.088
Knox	4625 Mildred Drive	470931020 - 1	0.096	0.096	0.092
Sevier	Great Smoky Mountains NP Cove Mountain	471550101 - 1	0.096	0.096	0.092
Sevier	Clingmans Dome, Great Smoky Mtns. NP	471550102 - 1	0.098	0.098	0.092

Table 1 B
Knoxville MSA and Jefferson County
Population Growth Data

County	Population 1990	Population 2000	PERCENT CHANGE 1990 - 2000	Population 2002	Area in Square Miles	2002 Pop. Density (Sq. Mile)	Projection 2010	% Growth 2000 - 2010
Anderson	68,398	71,330	4.3	71,627	337.51	212.2	76,000	6.5
Blount	86,286	105,823	22.6	109,849	558.56	196.7	115,135	8.8
Knox	336,610	382,032	13.5	389,327	508.46	765.7	404,666	5.9
Loudon	31,411	39,086	24.4	40,631	228.88	177.5	44,941	15.0
Sevier	51,368	71,170	38.5	74,456	592.29	125.7	82,031	15.3
Union	13,739	17,808	29.6	18,541	223.56	82.9	20,216	13.5
Not in the MSA								
Jefferson	33,120	44,294	33.7	45,801	273.81	167.3	50,173	13.3
TOTALS	620,932	731,543		750,232			793,162	

**Table 1 C
Knoxville MSA and Jefferson County
2002 Population Estimates**

County		Population
Anderson		71,627
*Oak Ridge	(27,387)	
*Clinton	(9,409)	
Blount		109,849
*Maryville	(23,120)	
*Alcoa	(7,734)	
Knox		389,327
*Knoxville	(173,890)	
Loudon		40,631
*Lenoir City	(6,819)	
Sevier		74,456
*Gatlinburg	(3,382)	
*Pigeon Forge	(5,083)	
*Sevierville	(11,757)	
Union		18,541
*Plainview	(1,866)	
TOTALS		704,431

NOT IN MSA	
Jefferson	45,801
TOTALS	750,232

* Based on 2000 Census Data

**Table 1 D
Knoxville MSA and Jefferson County
1999 NEI VOC and NOX Emissions
(ton/day)**

County	VOC			NOX		
	Mobile	Point	Total	Mobile	Point	Total
Anderson	6.26	7.07	13.33	12.70	42.30	55.00
Blount	9.67	9.76	19.43	10.50	7.30	17.80
Jefferson	6.52	5.71	12.22	16.10	0.10	16.20
Knox	39.42	45.76	85.19	70.80	25.60	96.40
Loudon	5.52	6.66	12.19	14.90	3.90	18.80
Sevier	8.14	4.33	12.47	10.40	0.40	10.80
Union	1.99	0.95	2.94	1.40	1.50	2.90
TOTAL	77.52	80.25	157.77	136.80	81.10	217.90

Summary Attainment Demonstration For The Knoxville Area

The modeled attainment test indicates that the Knoxville EAC area will likely not achieve attainment of the 8-hour ozone standard by 2007, unless additional controls to those included in the AS-4 control measure package are implemented. The modeling and attainment test results suggest a range in future-year estimated design values from 86 to 90 ppb. The higher value corresponds to the use of the 2000-2002 design value in the calculations, and the lower value corresponds to the use of the 2001-2003 DV. Although the EDV values are relatively high, the values of the simulated ozone exposure metrics indicate a significant reduction in 8-hour ozone for the 2007 AS-4 control measures simulation - approximately 60 to 80 percent for the various exposure metrics.

The difference in results using the different design values prompted an examination of the representativeness of the design value. A meteorologically adjusted design value for 2002 was calculated and use of this value gives a future EDV of 87 ppb. Thus, use of a meteorologically adjusted DV is consistent with the use of the 2001-2003 value.

The oxidant tagging results (as presented in Section 7 of this document) indicate that 8-hour ozone concentrations in the Knoxville area are influenced by emissions from the Atlanta area as well as other areas outside of the ATMOS fine grid. Thus, any regional ozone reductions that are not accounted for in the ATMOS modeling inventory (such as that from EACs being developed for Augusta, Macon, and other areas in northern Georgia) will contribute positively to lower ozone in the Knoxville region.

Please see the complete Weight Of Evidence discussion presented in Chapter 8 of the Modeling Analysis Technical Support Document (TSD) for details.

Attachment 1